SEQUENCE LISTING

<110> Allen, Steve
Lu, Albert
Thorpe, Cathy

<120> Thioredoxin H Homologs

<130> BB-1246

<140>
<141>

<150> 60/099,501
<151> September 8, 1998

<160> 13

<170> Microsoft Office 97

<210> 1
<211> 870
<212> DNA
<213> Momordica charantia .

<400> 1
gcacgagggg gaagactttt tgcaggactg cgatttctgt ttacatcaat ggctgaagaa 60
gggcaagtga ttgcgtgtca taagatagat gaatgggagg gacaattagg aaaatggaag 120
gattctgaga aactggttgt ggtggatttt actgcttcct ggtgcgggcc atgccgggca 180
attgctccat atttcacaga attggctaag aataacccaa atgtcgcttt cctgaaagtc 240
gacgttgacg aattgaacag tgttgctagc aagtgggaga ttaatgcaat gccaacgttt 300
gttttcctga aaaaagggaa aataattgag aagatcgttg gtgctgataa agtggggctg 360
tcgaagaaaa tattagagct tagtggaact actcccgctg ctacttctac tgcttagaca 420
gtctgcttgg aggatgtgat ccctctggtg caatggtgat tccgctttgg agtttgatct 480
aattgtggat gaaactgtgt ctaaaagatg ttaattgttt ggccttttgg gttttcccct 540
ttttaagttt ggatcatgtg cgcacctctc agttgtgatt ctggtgctag aagcttcagg 600
tttcaatgtg gaataaatgg gggcacctgc tctgaaattg aatgacattt ttgcacactt 660
ttcattattc ttctgtaaga acttgaattc actgtttttt tttaatctaa ttcttcgtag 720
cagtacagtg agatgttctt tcagcttgtt tagcaacttc ttaatccctc tcctggcttt 780
tattttctta ttattggaat ggaacttaga agaatcgaag ttgttatgat ttgttaaaag 840
tatttgttgt taaaaaaaaa aaaaaaaaaa 870

<210> 2
<211> 122
<212> PRT
<213> Momordica charantia

<400> 2
Met Ala Glu Glu Gly Gln Val Ile Ala Cys His Lys Ile Asp Glu Trp
1 5 10 15

Glu Gly Gln Leu Gly Lys Trp Lys Asp Ser Glu Lys Leu Val Val Val
20 25 30

Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Ala Ile Ala Pro Tyr
35 40 45

Phe Thr Glu Leu Ala Lys Asn Asn Pro Asn Val Ala Phe Leu Lys Val
50 55 60

```
Asp Val Asp Glu Leu Asn Ser Val Ala Ser Lys Trp Glu Ile Asn Ala
 65                  70                  75                  80

Met Pro Thr Phe Val Phe Leu Lys Lys Gly Lys Ile Ile Glu Lys Ile
                 85                  90                  95

Val Gly Ala Asp Lys Val Gly Leu Ser Lys Lys Ile Leu Glu Leu Ser
            100                 105                 110

Gly Thr Thr Pro Ala Ala Thr Ser Thr Ala
        115                 120
```

<210> 3
<211> 574
<212> DNA
<213> Catalpa speciosa

<400> 3

```
gcacgagggc ataaatacct tgtaattggg gatttttcgg agtaaaaaag ggaaatcgga  60
aaatggcttc ttcagaagag ggacaagtga tcggttgcca ctccgtcgac gagtggaagg 120
agcagttcca gaagggtgtt gactctaaga aactggtggt aatagacttc acggcttcct 180
ggtgcggacc atgccgtttc attgctccaa tcttggctga gatggccaag aagacacccc 240
atgtcatatt cctgaaagtc gacgtggatg aactcaagac tgttgctgag gaattcaaag 300
tggaggctat gccgaccttc gtgttcctca aggaagggaa agaagtggaa aggcttgtgg 360
gagcaaggaa ggaggaattg caggccacag ttgagaaaca tggcgctatc actgcttgat 420
gctgtttcaa tgtttagtta tgtaatatat gatgatgctt ggaataataa tgtcttaagt 480
tatccagatc gtatgtgact gacgtttctg ttgttatgtg gattgttatt gttaatgtaa 540
tgtaatggag tgtcttaaaa aaaaaaaaaa aaaa                              574
```

<210> 4
<211> 118
<212> PRT
<213> Catalpa speciosa

<400> 4

```
Met Ala Ser Ser Glu Glu Gly Gln Val Ile Gly Cys His Ser Val Asp
  1               5                  10                  15

Glu Trp Lys Glu Gln Phe Gln Lys Gly Val Asp Ser Lys Lys Leu Val
             20                  25                  30

Val Ile Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala
         35                  40                  45

Pro Ile Leu Ala Glu Met Ala Lys Lys Thr Pro His Val Ile Phe Leu
     50                  55                  60

Lys Val Asp Val Asp Glu Leu Lys Thr Val Ala Glu Glu Phe Lys Val
 65                  70                  75                  80

Glu Ala Met Pro Thr Phe Val Phe Leu Lys Glu Gly Lys Glu Val Glu
                 85                  90                  95

Arg Leu Val Gly Ala Arg Lys Glu Glu Leu Gln Ala Thr Val Glu Lys
            100                 105                 110

His Gly Ala Ile Thr Ala
        115
```

<210> 5
<211> 738
<212> DNA
<213> Glycine max

<400> 5
gcaccaggaa attctttagt tgtaactgac aaagttttct gagaaaataa ggattattat 60
tgagagaatg gctggctcat cggaagaggg acaagtcatt agctgccaca ccgttgaaga 120
atggaacgat caactccaga agggcaacga atccaagaaa ctcattgttg tggattttac 180
tgcttcttgg tgtggaccat gccgtttcat tgcaccattc ttggctgagc tggctaagaa 240
gttcacaagt gtcatattcc taaaggtgga tgtggacgaa ttaaagagtg tttctcaaga 300
ttgggctatt gaggctatgc ccactttgt gtttgtgaaa gagggaacgc ttctggacaa 360
agtggtggga gcaaagaagg atgagctgca gcagaaaata cagaaacatg tggcttcagc 420
tagtgcttaa tctagctcac cttcagaaac tttatatatg cgctttcttt tcataatctt 480
gtactagact tatgttggta tttctgttat tgcaccaatc agcttttcaa aggtgatgac 540
tcctatcatc tatttctgaa tagtagtaac tggtcctttc ttccgtctta aataatagtg 600
gatggtgcta tatcatgaat cttaattaca tagaccttcc tgttttccct tttagtatta 660
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaacaataaa 720
aaaaacaaaa aaaaaaaa 738

<210> 6
<211> 120
<212> PRT
<213> Glycine max

<400> 6
Met Ala Gly Ser Ser Glu Glu Gly Gln Val Ile Ser Cys His Thr Val
1 5 10 15

Glu Glu Trp Asn Asp Gln Leu Gln Lys Gly Asn Glu Ser Lys Lys Leu
20 25 30

Ile Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile
35 40 45

Ala Pro Phe Leu Ala Glu Leu Ala Lys Lys Phe Thr Ser Val Ile Phe
50 55 60

Leu Lys Val Asp Val Asp Glu Leu Lys Ser Val Ser Gln Asp Trp Ala
65 70 75 80

Ile Glu Ala Met Pro Thr Phe Val Phe Val Lys Glu Gly Thr Leu Leu
85 90 95

Asp Lys Val Val Gly Ala Lys Lys Asp Glu Leu Gln Gln Lys Ile Gln
100 105 110

Lys His Val Ala Ser Ala Ser Ala
115 120

<210> 7
<211> 601
<212> DNA
<213> Glycine max

<400> 7
gcacgagctc tctctctcta gacttagatt ttgtgaatgg ctgaagtgga agagggacag 60
gtcatcggcg tccacaccgt tgatgagtgg aagctgcaac tccagaatgc aaaagactcc 120
aaaaaactga ttgtggtgga ttttactgct tcctggtgtg gtccatgccg ttttatggcc 180
ccagttcttg cagagattgc aaagaaaact cctgaattga tcttcctcaa agtggatgtg 240

gatgaagtga ggcctgttgc tgaggaatat tccattgagg ccatgccaac cttcctcttc 300
ttgaaagatg gcgagatcgt ggacaaggtg gttggtgcta gtaaggatga ccttcaagcc 360
accatagcca agcatgcatc tgctgttgct gctgcttctt cttcttgaag tgaagtatca 420
taatatgaaa gaagacaaag aataatgcat tttaatgttt tcaagtcagt ttggatgttt 480
tctctatgga cattgagttg gcagaacatc gagtgatgta taaaaataaa attgttgcat 540
tgtctttttt tcgtaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 600
a 601

<210> 8
<211> 123
<212> PRT
<213> Glycine max

<400> 8
Met Ala Glu Val Glu Glu Gly Gln Val Ile Gly Val His Thr Val Asp
1 5 10 15

Glu Trp Lys Leu Gln Leu Gln Asn Ala Lys Asp Ser Lys Lys Leu Ile
20 25 30

Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Met Ala
35 40 45

Pro Val Leu Ala Glu Ile Ala Lys Lys Thr Pro Glu Leu Ile Phe Leu
50 55 60

Lys Val Asp Val Asp Glu Val Arg Pro Val Ala Glu Glu Tyr Ser Ile
65 70 75 80

Glu Ala Met Pro Thr Phe Leu Phe Leu Lys Asp Gly Glu Ile Val Asp
85 90 95

Lys Val Val Gly Ala Ser Lys Asp Asp Leu Gln Ala Thr Ile Ala Lys
100 105 110

His Ala Ser Ala Val Ala Ala Ala Ser Ser Ser
115 120

<210> 9
<211> 614
<212> DNA
<213> Vernonia mespilifolia

<400> 9
gcacgaggct aaataccatt tgaaagctaa aaaaaaatct ttgaattagg ttttcttgaa 60
gaagtttgag aaaaaaaatg gcggaagaag gagttgtaac cggaatccac accgtcgacc 120
agtggaatga gcaacttgag aagcacaagg gaactgacaa attggtggtt gtggatttca 180
ccgcctcatg gtgtggtcct tgccgtgtga ttgcaccaat cttggctgat tttgctaaga 240
agatgcccca tgttaccttc cttaaggttg atgtggatga actcgagagc gttgctcagg 300
agtggtcagt ggaggcaatg ccgactttcc tgtttctcaa gggcggagtg aaagtggaca 360
aggttgtggg tgctaagaaa gacgaacttc atgcctgcat cgtcaagcat tctgctgcta 420
cagtttctgc ttaacgtact acataatatg attatcttat cagcaactta ttagtctctt 480
ttcggatgtg ttgttgattt gctttgtggt aaaaccttag attttgaata ttgtccttgt 540
aaccttgggt tataacttgc tctttcatct atatgcataa attgaagttg ctgtattaaa 600
aaaaaaaaaa aaaa 614

<210> 10
<211> 118
<212> PRT
<213> Vernonia mespilifolia

<400> 10
Met Ala Glu Glu Gly Val Val Thr Gly Ile His Thr Val Asp Gln Trp
1 5 10 15

Asn Glu Gln Leu Glu Lys His Lys Gly Thr Asp Lys Leu Val Val Val
20 25 30

Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Val Ile Ala Pro Ile
35 40 45

Leu Ala Asp Phe Ala Lys Lys Met Pro His Val Thr Phe Leu Lys Val
50 55 60

Asp Val Asp Glu Leu Glu Ser Val Ala Gln Glu Trp Ser Val Glu Ala
65 70 75 80

Met Pro Thr Phe Leu Phe Leu Lys Gly Gly Val Lys Val Asp Lys Val
85 90 95

Val Gly Ala Lys Lys Asp Glu Leu His Ala Cys Ile Val Lys His Ser
100 105 110

Ala Ala Thr Val Ser Ala
115

<210> 11
<211> 114
<212> PRT
<213> Arabidopsis thaliana

<400> 11
Met Ala Ser Glu Glu Gly Gln Val Ile Ala Cys His Thr Val Glu Thr
1 5 10 15

Trp Asn Glu Gln Leu Gln Lys Ala Asn Glu Ser Lys Thr Leu Val Val
20 25 30

Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45

Phe Phe Ala Asp Leu Ala Lys Lys Leu Pro Asn Val Leu Phe Leu Lys
50 55 60

Val Asp Thr Asp Glu Leu Lys Ser Val Ala Ser Asp Trp Ala Ile Gln
65 70 75 80

Ala Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Leu Asp Lys
85 90 95

Val Val Gly Ala Lys Lys Asp Glu Leu Gln Ser Thr Ile Ala Lys His
100 105 110

Leu Ala

<210> 12
<211> 126
<212> PRT
<213> Nicotiana tabacum

<400> 12
Met Ala Ala Asn Asp Ala Thr Ser Ser Glu Glu Gly Gln Val Phe Gly
1 5 10 15

Cys His Lys Val Glu Glu Trp Asn Glu Tyr Phe Lys Lys Gly Val Glu
20 25 30

Thr Lys Lys Leu Val Val Val Asp Phe Thr Ala Ser Trp Cys Gly Pro
35 40 45

Cys Arg Phe Ile Ala Pro Ile Leu Ala Asp Ile Ala Lys Lys Met Pro
50 55 60

His Val Ile Phe Leu Lys Val Asp Val Asp Glu Leu Lys Thr Val Ser
65 70 75 80

Ala Glu Trp Ser Val Glu Ala Met Pro Thr Phe Val Phe Ile Lys Asp
85 90 95

Gly Lys Glu Val Asp Arg Val Val Gly Ala Lys Lys Glu Glu Leu Gln
100 105 110

Gln Thr Ile Val Lys His Ala Ala Pro Ala Thr Val Thr Ala
115 120 125

<210> 13
<211> 118
<212> PRT
<213> Ricinus communis

<400> 13
Met Ala Ala Glu Glu Gly Gln Val Ile Gly Cys His Thr Val Glu Ala
1 5 10 15

Trp Asn Glu Gln Leu Gln Lys Gly Asn Asp Thr Lys Gly Leu Ile Val
20 25 30

Val Asp Phe Thr Ala Ser Trp Cys Gly Pro Cys Arg Phe Ile Ala Pro
35 40 45

Phe Leu Ala Glu Leu Ala Lys Lys Leu Pro Asn Val Thr Phe Leu Lys
50 55 60

Val Asp Val Asp Glu Leu Lys Thr Val Ala His Glu Trp Ala Val Glu
65 70 75 80

Ser Met Pro Thr Phe Met Phe Leu Lys Glu Gly Lys Ile Met Asp Lys
85 90 95

Val Val Gly Ala Lys Lys Asp Glu Leu Gln Gln Thr Ile Ala Lys His
100 105 110

Met Ala Thr Ala Ser Thr
115